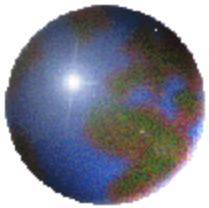
3D/4D Modeling and Visualization



Caltrans

Surveys

3D/4D Modeling

D4 and Innovation

- GIS for RW Records and other Data
- Innovative Use of Consultant Contracts
- Deformation Modeling Specifications for the New Bay Bridge
- Confidentiality Agreement – MGS
- First to Use Private Sector Subscriptions for RTNs
- Terrestrial Laser Scanning
- Mobile Laser Scanning

3D/4D Modeling and Visualization and Building Information Modeling

Definition of BIM:

BIM is the process of generating and managing data during a project's life cycle. Typically it uses three-dimensional data related to a time component (4D) as well as other geospatial data to increase productivity during design and construction. The process produces a model, which encompasses project geometry, spatial relationships, geographic information, quantities, and properties of project components.

3D/4D Modeling Benefits

- Constructability Review
- Quantity Tracking
- As-built Documentation
- Public Relations – Animations
- Schedule Optimization
- Improved Change Management
- Clash Detection

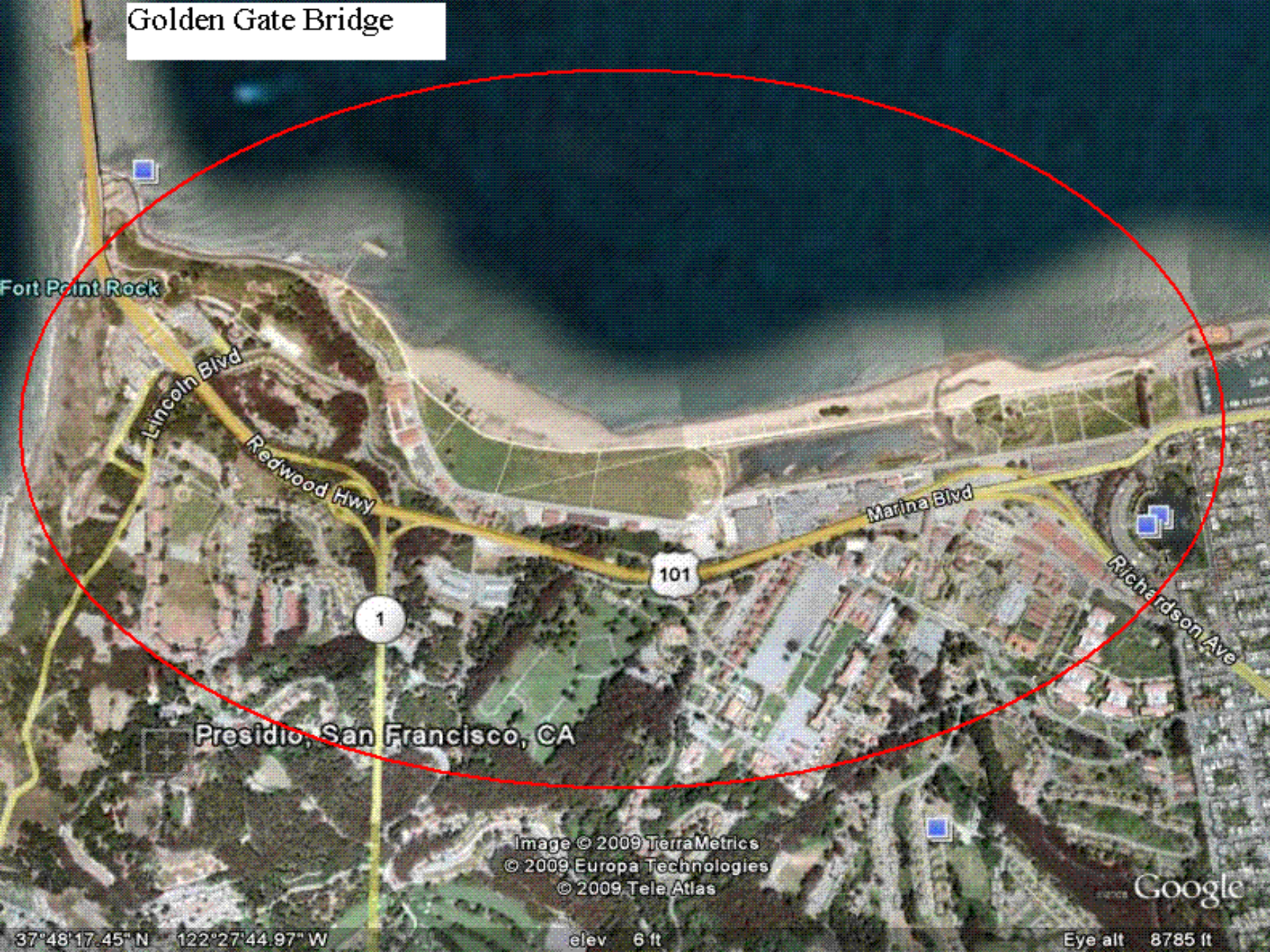
3D/4D Modeling

- Terrestrial Laser Scanning – Scan Station 2 and the new C10
- Mobile Laser Scanning – DEA (Titan), WH Pacific (Optech), and Terrmetrics3D

Chevron Pipes

Palace of Fine Arts

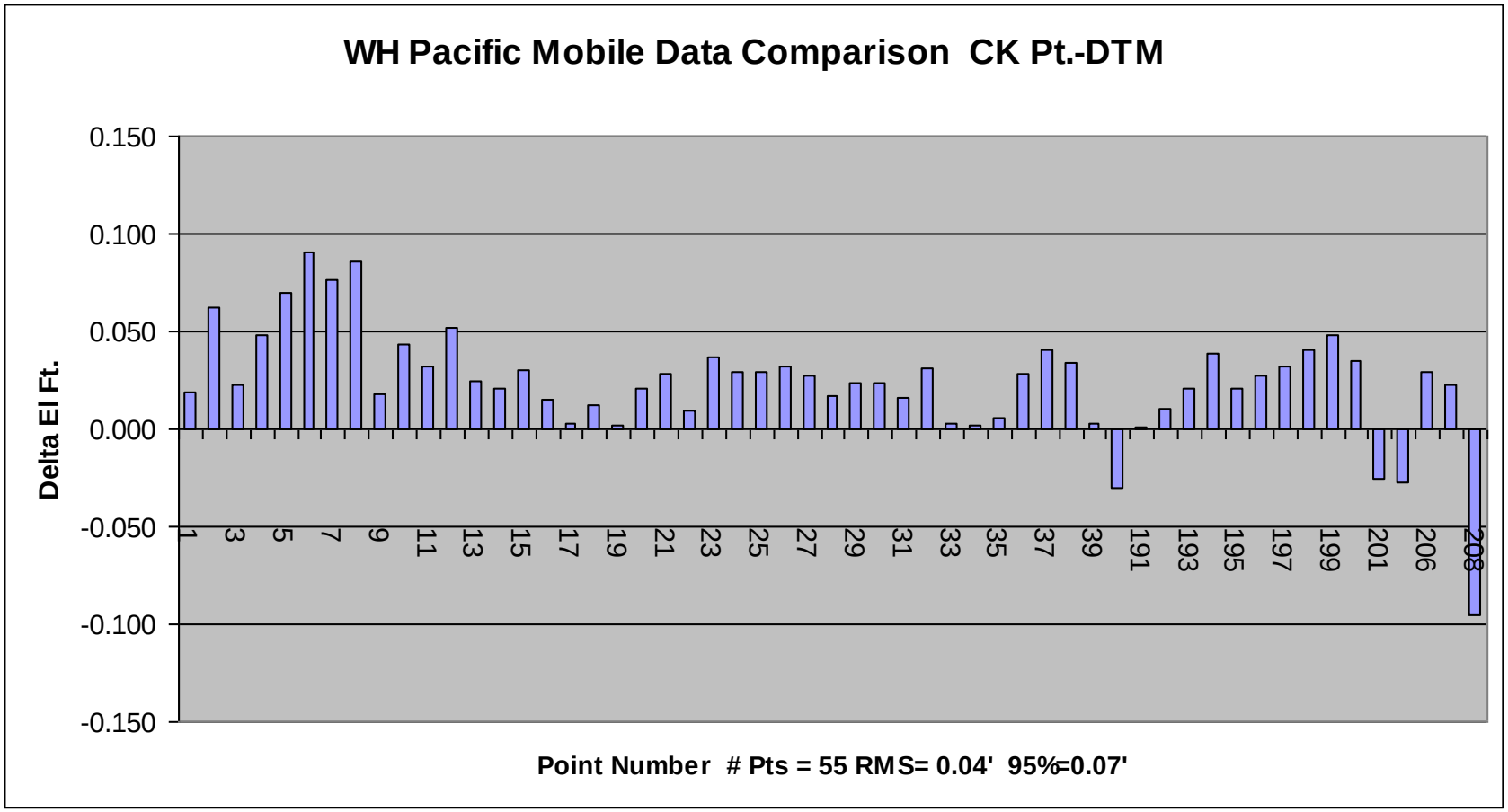
LYNX
MOBILE MAPPER
WHPacific


Golden Gate Bridge
Fort Point Rock
Lincoln Blvd
Redwood Hwy
Marina Blvd
101
1
Richardson Ave
Presidio, San Francisco, CA
Image © 2009 TerraMetrics
© 2009 Europa Technologies
© 2009 Tele Atlas
Google
37°48'17.45" N 122°27'44.97" W
elev 6 ft
Eye alt 8785 ft

Presidio Parkway

1. West Parkway
2. Veterans Boulevard
3. High Viaduct
4. Battery Bluff
5. Main Post Parkway
6. Main Post Bluff
7. Quartermaster
8. East Parkway

Presidio Parkway


WH Pacific Mobile Data Comparison CK Pt.-DTM
Delta El Ft.
0.150
0.100
0.050
0.000
-0.050
-0.100
-0.150
1
3
5
7
9
11
13
15
17
19
21
23
25
27
29
31
33
35
37
39
191
193
195
197
199
201
206
208
Point Number # Pts = 55 RMS= 0.04' 95%=0.07'

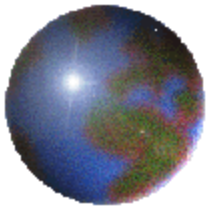
Guidelines

Building Information Modeling

- Example 1
- Example 2

Customer Products

- Weakest Component as Yet
- Education and Training of Customers
- Cyclone – Virtual Surveyor – TSS File
- PDFs to Environmentalists
- Point Cloud Plug in for Civil 3D
- 3D Reshaper



Questions